

ABSTRACT

[Problems]

A method of and an apparatus for continuous sub-critical water decomposition treatment for material to be processed containing solid matter are provided, which are capable of controlling decomposition reaction of the material to be processed and suitable for large-scale operations. The method and the apparatus are also capable of minimizing equipment costs and selectively producing desired useful substances at high yield rates.

[Means to Solve the Problems]

Material to be processed is grinded in advance into particles, which are mixed with water to prepare slurry. The slurry is sent to a compressing means (1) through a pipe and is compressed. Next, the compressed slurry is sent to a heating means 2 and heated, and is brought into a sub-critical state. The slurry in a sub-critical condition is introduced through an inlet (8) into a bottom part of a reactor (3). In the reactor (3) a fixed bed, a fluidized bed, and a sub-critical water dissolution part are formed in that order from the bottom. One(s) of outlets (101) to 106 provided at top and side portions of the reactor 3 is/are selected so that the sub-critical water dissolution part is taken out therethrough, whereby the residence time of the sub-critical water is adjusted and thus the reaction time of sub-critical water decomposition of the material to be processed is adjusted.